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In The
# Supreme Court of the United States

ENTERGY CORPORATION, *Petitioner,*

v.

ENVIRONMENTAL PROTECTION AGENCY, et al., *Respondents.*

PSEG FOSSIL LLC, et al., *Petitioners,*

v.

RIVERKEEPER, INC., et al., *Respondents.*

UTILITY WATER ACT GROUP, *Petitioner,*

v.

RIVERKEEPER, INC., et al., *Respondents.*

**On Writ Of Certiorari To The United States Court Of Appeals For The Second Circuit**

## *AMICUS CURIAE* BRIEF OF COMMERCIAL FISHERMAN OF AMERICA, ET AL. IN SUPPORT OF RESPONDENTS

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## INTERESTS OF *AMICI*

*Amici* Commercial Fishermen of America, Atlantic Offshore Lobstermen's Association, Gloucester Fishermen's Wives Association, Maryland Watermen's Association, Midcoast Fishermen's Association, Ocean State Fishermen's Association, Pacific Coast Federation of Fishermen's Associations, Rhode Island Commercial Fishermen's Association, Rhode Island Lobstermen's Association, and Rhode Island Shellfishermen's Association (collectively, "Commercial Fishing Organizations") are commercial fishing organizations concerned about the devastating impacts of once-through cooling water systems on fisheries.[1] *Amici* include ten commercial fishing organizations, one national in scope and the others regional along the East and West coasts. They represent people who earn their livelihoods from fishing, some on a full-time basis and others, because of weather and fishing restrictions, limited to part-time employment in the industry. Many of their members are single-boat family-run businesses; others are larger, commercial fleets. Appendix I contains a brief description of each *amicus* Commercial Fishing Organization.

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[1] All parties have consented to the filing of this brief, and the consent letters are on file with the Clerk in accordance with Supreme Court Rule 37.2(a). No counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amici*, their institutions, or their counsel made a monetary contribution to its preparation or submission.

Commercial fishing constitutes a significant sector of the U.S. economy. In 2007, commercial fishing contributed some $34.2 billion to the Gross National Product.[2] Commercial fishing is extraordinarily dangerous. It has consistently ranked as the most deadly occupation in the U.S.[3]

Commercial fishing depends fundamentally on the availability of fish. Once-through cooling water systems at existing power plants currently kill and maim vast quantities of commercially valuable fish, as well as eggs, larvae, and prey necessary for the rejuvenation and survival of the species. *Amici* Commercial Fishing Organizations have observed firsthand and suffered from the wholesale destruction of fish communities caused by once-through cooling systems, and have likewise seen the beneficial effects when power plants instead employ closed-cycle cooling systems. *Amici* Commercial Fishing Organizations are concerned that the use by the U.S. Environmental Protection Agency ("EPA") of cost-benefit analysis to develop the Phase II Rule at issue

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[2] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NOAA Economics, at http://www.economics.noaa.gov/?goal=ecosystems&file=users/business/fisheries (last visited October 1, 2008).

[3] U.S. Environmental Protection Agency, Regional Analysis Document for the Final Section 316(b) Phase II Existing Facilities Rule, EPA-821-R-02-003 (February 12, 2004), available at http://www.epa.gov/waterscience/316b/phase2/casestudy/final.htm (last visited October 2, 2008) ("Regional Analysis"), at A10-22.

in this case[4] inherently fails to protect the interests of commercial fishermen and the countless families and communities that depend on them for economic survival.

## SUMMARY OF ARGUMENT

The Clean Water Act requires that the nation's waters be made safe for fish. The statute seeks to ensure that all waters provide for the "protection and propagation of fish, shellfish, and wildlife." 33 U.S.C. § 1251(a)(2). The livelihood of the nation's commercial fishing industry rests on the fulfillment of this goal.

EPA's Phase II Rule fails to achieve the fisheries protection required by section 316(b) of the Clean Water Act, 33 U.S.C. § 1326(b). Once-through cooling water systems, currently in use at most existing power plants, kill billions of fish each year. EPA's Phase II Rule is projected to save only 33 percent of the 1.5 billion commercial and recreational fish killed each year by existing power plants. Closed-cycle cooling systems, by contrast, could save up to 98 percent of these fish.

[4] U.S. Environmental Protection Agency, National Pollutant Discharge Eliminate System – Final Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Facilities, 69 Fed. Reg. 41576 (July 9, 2004), in Petitioner Entergy's Appendix ("Pet. App.") at 122a ("Phase II Rule").

EPA unlawfully employed cost-benefit analysis to develop the Phase II Rule, and also authorized facilities to use site-specific cost-benefit analyses to determine how they might comply with the Rule. Cost-benefit analyses are incapable of valuing in dollar terms the benefits of fisheries protection. As EPA acknowledged, most of the fisheries benefits associated with improved cooling system technology cannot be monetized. There is very limited data available regarding fishery stocks. The cumulative impacts on fisheries of exposure to multiple cooling intake systems, pollution, overfishing, and other stressors are "largely unknown." EPA conceded that its cost-benefit analysis compared "a partial measure of benefits [to fisheries and the aquatic ecosystem] with a complete measure of costs [to power plants]." Phase II Rule, 69 Fed. Reg. 41576, 41666 (July 9, 2004) (Pet. App. 526a-527a.)[5]

The fact that it is so difficult, if not impossible, to assess and place dollar values on the benefits associated with protecting fisheries from once-through cooling underscores the wisdom of Congress's policy decision in 1972 to preclude EPA from using cost-benefit analyses in setting cooling water intake standards under section 316(b) of the Clean Water Act.

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[5] Citations to Pet. App. refer to the Appendix filed in No. 07-588.

## ARGUMENT

### I. ONCE-THROUGH COOLING WATER SYSTEMS POSE A SIGNIFICANT THREAT TO THE COMMERCIAL FISHING INDUSTRY.

#### A. Fisheries Protection Is A Core Goal Of The Clean Water Act.

Protection of fisheries is a central goal of the Clean Water Act. Congress declared in 1972 that, by 1983, the nation's waters should "provide[ ] for the protection and propagation of fish, shellfish, and wildlife . . . " 33 U.S.C. § 1251(a)(2). *See also PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 704 (1994). "One of the well-recognized aims of the Act is to ensure that the nation's waterways are 'fishable and swimmable.'" *Friends of the Earth, Inc. v. Gaston Copper Recycling Corp.*, 204 F.3d 149, 156 (4th Cir. 2000).

Commercial fishermen have a tangible stake in the Act's objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," 33 U.S.C. § 1251(a), so that they remain fishable. Indeed, commercial fishermen help the public to realize the benefits of the Act's fishable protections. Many wish to eat fish, both for their health and their enjoyment, but few have the skill, equipment, access, and time to locate, catch, and clean their own fish. Commercial fishermen collectively perform those services, but they cannot do so – and cannot maintain their livelihoods – without sustainable fish populations.

Once-through cooling systems at power plants pose a significant threat to numerous fish populations. As a result of once-through cooling and other factors, the commercial fishing industry is subject to numerous "overfishing" restrictions and catch limitations under the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801 *et seq.* Already struggling under such restrictions, commercial fishermen are substantially harmed by EPA's Phase II Rule because it fails meaningfully to protect fisheries from the devastating impacts of once-through cooling.

### B. Once-Through Cooling Water Systems Cause Enormous Harm To Fisheries.

Petitioners and their *amici* suggest that the fact that once-through cooling systems kill and maim enormous quantities of fish and other aquatic life is of little overall significance, and in some ways even beneficial. See, e.g., Entergy Br. at 49-50 and UWAG Br. at 8-10. These claims are misleading at best, contrary to EPA's findings in support of the Phase II Rule, and contrary to the experience of commercial fishermen.

As acknowledged by EPA and highlighted by respondents and other *amici*, in particular National Wildlife Federation, once-through cooling systems cause devastating impacts to aquatic life. EPA estimates that once-through cooling systems at facilities covered by the Phase II Rule withdraw more than 214

billion gallons of water each day, killing more than 3.4 billion fish and shellfish each year by means of impingement and entrainment. Phase II Rule, 69 Fed. Reg. at 41586 (Pet. App. at 169a-170a). Once-through cooling systems not only kill fish and shellfish that could otherwise be caught and sold by commercial fishermen, but they also threaten the ability of aquatic communities to sustain themselves by destroying vast numbers of eggs and larvae.

This wholesale destruction of fish communities necessarily threatens the commercial fishing industry. Among the "multiple types of undesirable and unacceptable environmental impacts that may be associated with Phase II existing facilities," EPA listed "losses to populations including reductions of indigenous species populations, commercial fisheries stocks, and recreational fisheries[.]" *Ibid.* In addition, "cooling water systems 'may interfere with the maintenance or establishment of optimum yields of sport or commercial fish and shellfish, decrease populations of endangered organisms, and seriously disrupt sensitive ecosystems.'" *Cronin v. Browner*, 90 F.Supp.2d 364, 367 (S.D.N.Y. 2000) (internal citation omitted).

At best, once-through cooling systems substantially exacerbate the enormous strains on the commercial fishing industry. Most obviously, fewer fish available to catch and sell translates directly into reduced revenues for commercial fishermen. Accordingly, fewer fish means leaner times for fishermen. "People employed in the fishing subsector harvest fish

and shellfish from their natural habitat in fresh water and in tidal areas and the ocean, and depend for their livelihood on a naturally replenishing supply of fish, lobster, shellfish, or other edible marine life."[6] As a result of once-through cooling systems, pollution, and other threats to fish populations, fish stocks have become depleted and "overfishing" restrictions such as catch limits have been imposed. The combination of once-through cooling and catch limits places a tremendous burden on commercial fishing. In the North Atlantic region, for example, "the majority of the stocks requiring management are also subject to I&E [impingement and entrainment]." Regional Analysis at C2-3.

> . . . [I]t is undisputed that fishermen are struggling to sustain their livelihood despite strict fishery management restrictions which aim to rebuild fish populations. EPA shares the concerns expressed by expert fishery scientists that historical overfishing has increased the sensitivity of aquatic ecosystems to subsequent disturbance, making them more vulnerable to other stressors, including cooling water intake structures.

Phase II Rule, 69 Fed. Reg. at 41590 (Pet. App. at 188a).

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[6] Bureau of Labor Statistics, U.S. Department of Labor, *Career Guide to Industries, 2008-09 Edition*, Agriculture, Forestry, and Fishing (available at http://www.bls.gov/oco/cg/cgs001.htm) (visited September 27, 2008).

At worst, however, once-through cooling systems have driven the decline of commercial fisheries. One such example, which EPA noted in the Phase II Rule and with which Commercial Fishing *amici* are directly familiar, involves the Brayton Point Station power plant in Mount Hope Bay, Massachusetts. In this case, EPA documented both (1) stark evidence of the difference between once-through and closed-cycle cooling systems in terms of fisheries losses and (2) the inability of fisheries to recover, even when strict catch limits are in place, when confronted with a poorly-located once-through cooling system.

> EPA determined that, among other things, the facility's cooling water system had contributed to the collapse of the fishery and inhibited its recovery despite stricter commercial and recreational fishing limits and improved water quality due to sewage treatment upgrades. The facility currently withdraws nearly one billion gallons of water each day and the average annual losses of aquatic organisms due to impingement and entrainment are estimated in the trillions, including 251 million winter flounder, 375 million windowpane flounder, 3.5 billion tautog and 11.8 billion bay anchovy. *A dramatic change in the fish populations in Mount Hope Bay is apparent after 1984 with a decline by more than 87 percent, which coincides with a 45 percent increase in cooling water withdrawal from the bay due to the modification of Unit 4 from a closed-cycle recirculating system to a once-through cooling*

> *water system and a similar increase in the facility's thermal discharge.* The downward trend of finfish abundance in Mount Hope Bay is significantly greater than declines in adjacent Narragansett Bay that is not influenced by the operation of Brayton Point Station. *Despite fishing restrictions, fish stocks have not recovered.*

Phase II Rule, 69 Fed. Reg. at 41588 (Pet. App. at 179a-180a) (emphasis supplied).

The firsthand experience of *amicus* Ocean State Fishermen's Association in struggling to maintain their fishing livelihoods in the Mount Hope Bay area confirms EPA's findings about the role of the Brayton Point plant's once-through cooling system in devastating the flounder population in the Bay.

Although some may claim that the Brayton Point example is unusual, the paucity of reliable data undermines any such assertion. According to EPA, many of the studies addressing impingement and entrainment impacts of once-through cooling systems are characterized by "limited data that were collected as long as 25 years ago" and "serious study design limitations." Phase II Rule, Pet. App. at 181a-182a. In addition, only a small percentage of existing facilities with once-through cooling have any impingement and entrainment data, flawed or not. EPA reports that "only 150 out of 554 Phase II facilities have . . . ever performed an impingement and entrainment (I&E) study." U.S. Environmental Protection Agency, Economic and Benefits Analysis for the Final Section

316(b) Phase II Existing Facilities Rule, EPA-821-R-04-005 (available at http://www.epa.gov/waterscience/316b/phase2/econbenefits/final.htm) (visited October 2, 2008) ("Economic and Benefits Analysis") at A2-1[7]

Because "[m]any CWIS have been constructed on sensitive aquatic systems with capacities and designs that cause damage to the waterbodies from which they withdraw water," *ibid.*, there is good reason to believe that the damage documented at the Brayton Point plant is occurring at numerous other sites.

### C. The Phase II Rule Will Not Protect Commercial Fisheries From The Devastating Impacts Of Power Plants' Cooling Water Systems.

EPA's Phase II Rule will do precious little to mitigate these conditions. According to EPA, the Rule will reduce by only 33 percent the loss of commercial and recreational fish:

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[7] The Regional Analysis prepared by EPA in conjunction with the Phase II Rule indicated that California was the only region with more than 20% of the facilities reporting impingement and entrainment data. Regional Analysis at B2-20 (18 out of 20 facilities had such data).. For all other regions, fewer than one-fifth of the facilities had such data: North Atlantic – 4 out of 22; Mid-Atlantic – 6 out of 39; Gulf of Mexico – 4 out of 24; Great Lakes – 3 out of 56; and Inland Region – 3 out of 56. *Id.* at C2-15, D2-21, F2-14 (chart incorrectly labeled "California"), G2-13-15, and H2-11-12, respectively.

> Under current conditions, EPA estimates that over 1.5 billion fish (expressed as age 1 equivalents) of recreational and commercial species are lost annually due to impingement and entrainment at in-scope Phase II facilities. Under the final rule, more than 0.5 billion individuals of these commercially and recreationally sought fish species (age 1 equivalents) are estimated to survive and join the fishery each year.

Phase II Rule, 69 Fed. Reg. at 41669 (Pet. App. at 538a).[8]

In contrast, closed-cycle cooling systems could reduce these enormous losses by up to 98 percent. Phase II Rule, 69 Fed. Reg. at 41601 (Pet. App. at 239a-240a). In other words, whereas under the Phase II Rule 1.0 billion commercial and recreational fish will continue to be killed each year by existing power plants' cooling water systems, closed-cycle cooling could reduce the death toll to 0.03 billion – saving 0.97 billion more fish than under the Phase II Rule. EPA found that "[c]losed-cycle cooling systems . . . are the most effective means of protecting organisms from I&E [impingement and entrainment]." Economic and Benefits Analysis at A2-5. Some 14 percent of the

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[8] EPA estimates that a total of 3.4 billion fish and shellfish are currently being killed each year by impingement and entrainment at Phase II facilities. Phase II Rule, 69 Fed. Reg. at 41586 (Pet. App. at 171a-172a). EPA labels 1.5 billion of those fish and shellfish as commercial and recreational. *Id.*, 69 Fed. Reg. 41669 (Pet. App. at 538a).

facilities covered by the Phase II Rule already employ closed-cycle cooling. *Ibid.* However, the Phase II Rule does not necessarily require *any* of the remaining Phase II facilities to match the performance of closed-cycle cooling.[9]

## II. CONGRESS PRECLUDED EPA FROM USING COST-BENEFIT ANALYSIS TO SET CWIS STANDARDS; COST-BENEFIT ANALYSIS CANNOT REASONABLY ACCOUNT FOR FISHERIES HARMS.

Petitioners frame the issue before this Court as one of balancing the environmental concerns of protecting fish against the economic concerns of industries required to implement cooling system controls. See, e.g., Federal Petitioners' Br. at 35-42 (providing an accounting of EPA's "costs and benefits" analysis but failing even to mention benefits to the commercial fishing industry); Entergy Br. at 45 (characterizing the relevant benefits in this case as "risks to individual fish").

Respondents and other *amici* explain why EPA's use of cost-benefit analysis to support the Phase II Rule is unlawful under the Clean Water Act, rendering petitioners' arguments irrelevant. Focusing on the

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[9] Use of technology whose performance is comparable to closed-cycle cooling is but one of five options from which facilities may choose in order to comply with EPA's Phase II Rule. Phase II Rule, 69 Fed. Reg. at 41590-91 (Pet. App. at 190a-196a).

aspects of EPA's cost-benefit analysis applicable to commercial fisheries – which are less incomplete and speculative than those aspects applicable to recreational fisheries and "non-use" ecological impacts – this brief highlights the flaws that preclude an accurate analysis of commercial fisheries impacts. Those flaws underscore the wisdom of Congress's policy decision to preclude EPA from using cost-benefit analysis in setting technology-based standards under Clean Water Act section 316(b).

EPA employed cost-benefit analysis in the Phase II Rule in two distinct contexts. First, EPA apparently used a cost-benefit analysis to develop the Phase II Rule itself. Second, one of the five compliance options established in the Phase II Rule offers facilities the opportunity to employ a site-specific cost-benefit analysis to develop their own cooling system requirements. 40 C.F.R. § 125.94(a)(5)(ii). Both uses of cost-benefit analysis undermine the Act's goal of fisheries protection because cost-benefit analysis cannot monetize the fisheries benefits side of the equation.

### A. The Cost-Benefit Analysis On Which EPA Based The Phase II Rule Could Not Monetize All Commercial Fisheries Impacts.

Congress well appreciated in 1972, when enacting the Clean Water Act, that environmental benefits are difficult, if not impossible, to quantify and monetize.

*See Amici* Environmental Law Professors' Br. at 5-10. In its unlawful attempt to resurrect cost-benefit analysis in support of the Phase II Rule, EPA acknowledged the difficulties in monetizing the benefits of fisheries protection, put a dollar value on a miniscule fraction of the claimed benefits, and left the non-monetized benefits by the wayside. Phase II Rule, 69 Fed. Reg. at 41657-64 (Pet. App. 482a-515a).

EPA's benefits analysis offers separate estimates of monetized benefits to commercial fishing and recreational fishing, and attempts to quantify, but not to monetize, "non-use benefits" associated with commercial and recreational fishing as well as with ecological and other benefits. *Ibid.* EPA apparently considered benefits to commercial fishing the most amenable to monetizing because commercial fish are bought and sold in the market. *Id.*, 69 Fed. Reg. at 41657 (Pet. App. at 482a). It is particularly telling, then, that even EPA's calculations of the benefits to commercial fishing are riddled with data gaps and uncertainties.

First, EPA states that it was only able to monetize the Rule's benefits to 1.8 percent of the "age 1 equivalent aquatic organisms" that the Rule is expected to protect. *Id.*, 69 Fed. Reg. at 41660-61 (Pet. App. at 499a). "The Agency's direct use valuation does not account for the benefits from the remaining 98.2% of the age 1 equivalent aquatic organisms estimated to be protected nationally under today's rule." *Ibid.* While some of those non-monetized benefits pertain to recreational fishing

and non-use benefits, some of them pertain to commercial fishing. "Neither forage species nor the unlanded portion of recreational and commercial species have direct uses; therefore, they do not have direct use values." *Id.*, 69 Fed. Reg. at 41657 (Pet. App. at 484a). In other words, the benefits of protecting 98.2 percent of the purportedly-protected fish – an unspecified percentage of which are unharvested commercial species or food on which commercial species depend – are valued at $0.

Second, EPA acknowledges that it has limited information regarding the status of fishery stocks. The only data it has are for harvested species, and stock status even for harvested species is "often poorly known." Regional Analysis at A5-2. See also Phase II Rule, 69 Fed. Reg. at 41589-90 (Pet. App. at 186a-187a). "In addition to a lack of data, there are numerous issues and difficulties with defining the size and spatial extent of fish stocks. As a result, it is often unclear how I&E losses at particular cooling water intake structures can be related to specific stocks." Regional Analysis at A5-2.

Third, EPA's calculations admittedly do not reflect cumulative impacts of once-through cooling and other stressors on fish. For example, although migratory fish may be vulnerable to I&E impacts from multiple power plants' once-through cooling systems, and nearly one-fourth of the Phase II facilities are located on waterbodies with more than one Phase II facility, EPA was not able to assess these cumulative impacts.

> The potential cumulative effects of multiple intake structures located within a specific waterbody or along a coastal segment are difficult to quantify and are not typically assessed. . . . EPA is concerned that although the potential for aquatic species to be affected by cooling water withdrawals from multiple facility intakes is high, this type of cumulative impact is largely unknown and has not adequately been accounted for in evaluating impacts.

Phase II Rule, 69 Fed. Reg. at 41589 (Pet. App. at 183a).

In addition, although more than 99 percent of existing cooling systems facilities surveyed by EPA are within two miles of waterbodies with "impaired" water quality, EPA was unable to calculate the cumulative effects on fish of power plants' cooling systems and degraded water quality. *Ibid.* Nor could EPA calculate the extent to which cooling systems threaten the survival of already-depleted fishing stocks.

> Although a clear and detailed picture of the status of all our fishery resources does not exist, it is undisputed that fishermen are struggling to sustain their livelihood despite strict fishery management restrictions which aim to rebuild fish populations.
>
> EPA shares the concerns expressed by expert fishery scientists that historical overfishing has increased the sensitivity of aquatic ecosystems to subsequent disturbance, making them more vulnerable to

> other stressors, including cooling water intake structures.

Phase II Rule, 69 Fed. Reg. at 41590 (Pet. App. at 188a).[10]

Ultimately, EPA concedes that its cost-benefit analysis is seriously flawed:

> As a consequence of the challenges associated with estimating benefits, some benefits are described only qualitatively, because it was not feasible, by the time of publication of this final rule, to derive reliable quantitative estimates of the degree of impact and/or the monetary value of reducing those impacts at the national level
>
> * * *

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[10] See also Regional Analysis at A10-3:

> In estimating the benefits of reducing I&E losses, it is important to understand how increased fish populations may affect stocks in different fisheries. Where stocks are thriving, a small increase in the number of individual fish affected by I&E may not be noticed, but where stocks are already depleted the marginal impact of a small increase may be much more important.
>
> Many fisheries in the United States tend to be heavily fished. In the mid-1900s, many U.S. fisheries were over-fished, some to the point of near collapse (NMFS, 1999b, 2001a; U.S. Bureau of Labor Statistics, 2002). The situation currently is showing some improvement slowly because of recent management efforts mandated by Magnuson-Stevens Act and other regulations. However, many of the current restrictions on fishing have not been in place long enough to have a dramatic impact on fisheries.

> EPA notes that these analyses are based on a comparison of a partial measure of benefits with a complete measure of costs; therefore, the results must be interpreted with caution.

Phase II Rule, 69 Fed. Reg. at 41657 and 41666 (Pet. App. at 485a and 526a-527a).

### B. Site-Specific Cost-Benefit Analyses Authorized By The Phase II Rule Are Similarly Incapable Of Protecting Commercial Fisheries.

The Phase II Rule offers facilities the option of having their cooling water standards set by means of a site-specific cost-benefit analysis. 40 C.F.R. § 125.94(a)(5)(ii). Site-specific cost-benefit analyses are likely to suffer from all of the flaws that characterized EPA's cost-benefit analysis, highlighted above. A site-specific cost-benefit analysis is in no better position than was EPA to place a value on the 98.1 percent of aquatic organisms that include and support commercial fisheries but were excluded from EPA's Phase II cost-benefit analysis. A site-specific analysis is in no better position to overcome the paucity of baseline data than was EPA's Phase II analysis. And a site-specific cost-benefit analysis is even less well-suited than was EPA's nationwide analysis to take account of cumulative impacts, such as multiple cooling intake systems, overfishing, and other stressors on fish populations.

In addition, the migratory nature of many fish species highlights the prejudice to commercial fishing interests in the use of the site-specific cost-benefit option. Some commercially-valuable fish known as "anadromous," such as salmon, striped bass, and shad, spawn and raise their young in freshwater tidal rivers and live the rest of their lives in saltwater marine environments. Other commercial species known as "catadromous," such as eels, have the opposite lifecycle; they are born in the ocean and spend the rest of their lives in fresh water.[11] In addition, many commercial species, such as herring, anchovies, and mackerel, move in unpredictable patterns and can travel significant distances throughout their lives. Just as EPA's Phase II cost-benefit analysis did not even attempt to monetize the fisheries benefits of technology options in light of these life-cycle and migratory considerations, site-specific cost-benefit analyses will almost certainly exclude or undervalue them.

Such pervasive and insurmountable limitations in fully assessing and placing a dollar value on the benefits to fisheries of control options on a national level underscore the prejudice to commercial fisheries in employing even more limited, site-specific cost-benefit analysis. As the Rule states, "If the Director

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[11] See National Oceanic and Atmospheric Administration, "What Are Diadromous Fish?", available at http://www.nmfs.noaa.gov/habitat/habitatprotection/anadfish/indexa.htm (visited September 29, 2008).

determines that the data specific to your facility demonstrate that the costs of compliance under [earlier listed compliance alternatives] would be significantly greater than the benefits of complying with the applicable performance standards at your facility, the Director must make a site-specific determination of the best technology available for minimizing adverse environmental impact." 40 C.F.R. § 125.94(a)(5)(ii). The language of site-specificity for the cost-benefit analysis suggests that the focus of the Director's inquiry is to be on localized costs and benefits, which inherently undervalues fisheries benefits because of the interdependence between local fish stocks and conditions at other locations critical to fish survival. The multiple threats to fisheries and the other aquatic organisms on which they depend, at multiple locations, cannot be monetized, as EPA has determined, and will not even be valued in a site-specific context.[12]

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[12] As Orrin H. Pilkey and Linda Pilkey-Jarvis observe in the context of overfishing, mathematical modeling is more difficult in the context of fisheries than many other contexts. Orrin H. Pilky & Linda Pilkey-Jarvis, "Chapter 1: Mathematical Fishing," in USELESS ARITHMETIC: WHY ENVIRONMENTAL SCIENTISTS CAN'T PREDICT THE FUTURE, Columbia Univ. Press (2007) at 1-21. Contributing factors include "the complex interaction of huge number of parameters [which make] mathematical modeling on a scale of predictive accuracy that would be useful to fishers a virtual impossibility," id. at 10, and the "damaging simplifying assumption[s] put into a mathematical model in order to bridge a gap in understanding of the system being modeled." *Id.* at 12.

The problem for the Commercial Fishing Organizations is one of structural mismatch. See Daniel Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 587 (1996). The economic benefit that would accrue to the Commercial Fishing Organizations from a facility implementing the closed-cycle cooling technology would fall outside the boundaries described in the site-specific cost-benefit analysis. "In this case, because the regulator ignores the potential welfare gains of the extrajurisdictional beneficiaries, too little of the public good is provided." *Ibid.*; see also Richard O. Zerbe, *Optimal Environmental Jurisdictions*, 4 ECOLOGY L.Q. 193, 245 (1974) (identifying the need for larger-scale environmental regulation "where there is undue political influence at local levels, where there is sufficient interjurisdictional pollution, and where technological considerations give substantially greater efficiency to larger jurisdictions in either providing technical information or in carrying out control responsibilities").

Indeed, past studies of federal agencies' use of cost-benefit analyses support the concern that the Phase II Rule slights the cumulative impacts of multiple cooling water systems, numerous threats to fish at different life-cycle stages, and threats to vital food sources – all of which collectively threaten the sustainable fish populations necessary for commercial fishing to thrive. As the Presidential/Congressional Commission on Risk Assessment and Risk Management observed in 1997, federal agencies have a history of failure in identifying incremental but

cumulatively significant impacts.[13] This leads to the phenomenon that economist Alfred Kahn deemed the "tyranny of small decisions,"[14] where individual decisions that may not by themselves be considered detrimental will nonetheless cumulatively generate costly impacts. Such is the danger in both the general fisheries context[15] as well as other environmental contexts.[16] The Phase II Rule presents that very danger; it allows facilities to develop cooling system standards based solely on site-specific cost-benefit analyses, thereby rendering stakeholders with more regional economic concerns, such as commercial fishing interests, subject to this tyranny.

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[13] Presidential/Congressional Commission on Risk Assessment and Risk Management, Framework for Environmental Health Risk Management, at 9-14 (1997) (available at http://www.enotes.com/public-health-encyclopedia/risk-assessment-risk-management) (visited October 1, 2008).

[14] Alfred E. Kahn, *The Tyranny of Small Decisions: Market Failures, Imperfections, and the Limits of Economics*, 19 KYKLOS: INT'L REV. SOC. SCI. 23 (1966).

[15] See Robert C. Lothrop, *The Misplaced Role of Cost-Benefit Analysis in Columbia Basin Fishery Mitigation*, 16 ENVTL. L. 517, 534 n.61 (1986) (citing several studies demonstrating that fisheries values are underestimated when only a small portion of the fisheries supply is to be affected by any one development and cumulative impacts are ignored.")

[16] James C. Buresch, *State and Federal Land Use Regulation: An Application to Groundwater and Nonpoint Source Pollution Control*, 95 YALE L.J. 1433, 1448-49 (1986) (noting that a potential hazardous waste location might fail localized cost-benefit analysis, but still be the optimal site regionally).

In sum, the inability to monetize the benefits of fisheries protection in both the EPA's national approach to cost-benefit analysis in support of the Phase II Rule, and in the site-specific analyses authorized by the Rule, underscores the wisdom of Congress's policy choice to preclude EPA from using cost-benefit analyses to set technology-based standards under section 316(b) of the Clean Water Act.

## CONCLUSION

The judgment of the court of appeals should be affirmed.

Respectfully submitted,

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## APPENDIX I: IDENTIFICATION OF *AMICI* COMMERCIAL FISHING ORGANIZATIONS

Following is a brief description of *amici* Commercial Fishing Organizations.

### Commercial Fishermen of America

The Commercial Fishermen of America ("CFA") is an umbrella non-profit organization that supports the nation's fishing men and women and promotes the health of the oceans in which they work. CFA members collaborate across all fishing regions of the United States by sharing ideas, finding jobs, and encouraging local regulations that protect and promote fish populations so that the time-honored profession of fishing remains alive. The CFA's mission is "to promote the common interest of the fishing industry, provide a forum to foster professional collaboration among fishermen, and educate Americans about the profession of commercial fishing." CFA is based in San Francisco, California. See also http://www.cfafish.org/about.html (last visited September 29, 2008).

### Atlantic Offshore Lobstermen's Association

Established in 1970, the Atlantic Offshore Lobstermen's Association ("AOLA") (known until 1992 as the Atlantic Offshore Fishermen's Association) is a non-profit organization representing the commercial offshore lobster industry. AOLA is the sole voice of the offshore lobster fleet from New Hampshire to New

Jersey. AOLA addresses state and federal regulations and environmental concerns to preserve the long-term sustainability of the lobster resource and the lobster industry. AOLA works with scientists, managers, and academics to rebuild and protect the lobster resource and maintain the communities and shore-based infrastructure crucial to the survival of the commercial fishing industry. AOLA is based in Bedford, New Hampshire. See also http://offshorelobster.org/main/about (last visited September 29, 2008).

**Gloucester Fishermen's Wives Association**

The Gloucester Fishermen's Wives Association ("GFWA") is a non-profit organization that has been promoting the New England fishing industry, helping to preserve the Atlantic Ocean as a food supply for the world, and assisting active and retired fishermen and their families to live better lives since 1969. The goal of the organization is to help promote a healthy environment and a just economy that allows local and family-owned fishing enterprises to survive. GFWA has helped to organize fishermen's wives organizations in Alaska, Cape Cod, and England. GFWA is based in Gloucester, Massachusetts. See also http://www.gfwa.org/aboutUs/about.html (last visited September 29, 2008).

**Maryland Watermen's Association**

The Maryland Watermen's Association ("MWA") is a non-profit umbrella organization supporting

fishermen, crabbers, clammers, and others who benefit from the fisheries of Maryland's Chesapeake Bay. MWA consists of over 6000 members throughout the Chesapeake Bay area who fish striped bass, catfish, eels, oysters, white and yellow perch, and other fish. MWA is based in Annapolis, Maryland. See also http://www.marylandwatermen.com (lasted visited September 29, 2008).

**Midcoast Fishermen's Association**

Established in 2006, the Midcoast Fishermen's Association ("MFA") is a non-profit advocacy group for approximately 22 "Down East" Maine fishermen and their 11 boats. MFA works to restore groundfish fisheries and sustain fishing communities along Maine's coast for future generations. Because fishing for a variety of seafood, including lobster, shrimp, scallops, and fish, is the main source of income for many of Maine's residents, the MFA is based on a strong conservation ethic to ensure the livelihoods of future Maine fishermen. The MFA works with the Midcoast Fishermen's Cooperative (established in 2007 by Maine's groundfishermen) to establish a sustainable link between fishermen and the people who enjoy eating fresh seafood. MFA is based in Port Clyde, Maine. See also http://www.midcoastfishermen.org (last visited September 29, 2008).

**Ocean State Fishermen's Association**

Established in 1983, the Ocean State Fishermen's Association ("OSFA") has approximately 60 members from nearly all fisheries across Rhode Island, including lobster, finfish, shellfish, seiners, and aquaculture fisheries. OSFA members have personally observed a substantial decline in the winter flounder population in the Narragansett Bay as a result of the Brayton Point power plant. OSFA is based in Barrington, Rhode Island.

**Pacific Coast Federation of Fishermen's Associations**

For nearly 30 years, the Pacific Coast Federation of Fishermen's Associations ("PCFFA") has been the largest and most politically active trade association of commercial fishermen on the West Coast. A federation of many different port and fishermen's marketing associations, PCFFA includes member organizations along the West Coast from Alaska to San Diego, California. PCFFA works to assure the long-term survival of commercial fishing as a productive livelihood and way of life. PCFFA strives to embody the working family fisherman – the working men and women operating their vessels to bring to America's table the ocean's bounty of fresh wild salmon, dungeness and rock crab, squid, herring, swordfish, shark, blackcod, rockfish, albacore, sea cucumber, California halibut and flounder, urchin and abalone. PCFFA is based in San Francisco, California and Eugene,

Oregon. See also http://www.pcffa.org (last visited September 29, 2008).

**Rhode Island Commercial Fishermen's Association**

Founded in 1999, the Rhode Island Commercial Fishermen's Association ("RICFA") is a non-profit organization of working, commercial fishermen and family-owned fishing businesses. RICFA is works to promote the interests of the Rhode Island commercial fishing industry. RICFA members harvest a wide range of fish species, including cod, haddock, winter flounder, scup, squid, butterfish, mackeral, whiting, lobster, and sea scallops. RICFA supports the restoration and preservation of essential fish habitats and ecosystems in coastal New England as the foundation for ensuring the sustainable fisheries upon which its members depend. RICFA is based in Wakefield, Rhode Island.

**Rhode Island Lobstermen's Association**

Established in the 1970s, the Rhode Island Lobstermen's Association ("RILA") consists of approximately 80 members involved in all stages of lobster harvesting and manufacture in the "inshore" area within approximately 40 miles of shore. RILA has undertaken several programs to try to rebuild this lobster fishery to sustainable levels, including increasing the minimum size of lobsters that are harvested and dramatically reducing the number of

traps in the area. RILA is concerned that these and similar measures will be ineffective if CWIS continue destroying lobster larvae before they have a chance to recruit into the fishery. RILA is based in Wakefield, Rhode Island. See also http://www.rilobstermen.com (last visited September 29, 2008).

**Rhode Island Shellfishermen's Association**

The Rhode Island Shellfishermen's Association ("RISA") was established in 1980 and currently consists of approximately 100 members who harvest shellfish. RISA promotes water quality protection as a means of preserving the shellfish populations that support RISA members' financial well-being and livelihoods. All RISA members own and operate their own boats. RISA is based in Coventry, Rhode Island.